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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/318,268	05/25/1999	HITOSHI MATSUMOTO	Q54505	1128

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EXAMINER

MOUTTET, BLAISE L

ART UNIT PAPER NUMBER

2853

DATE MAILED: 01/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/318,268

Applicant(s)

MATSUMOTO ET AL.

Examiner

Blaise L Mouttet

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 December 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 27-34 and 36-40 is/are allowed.
- 6) ☒ Claim(s) 1-11, 13, 14, 16-20 and 24-26 is/are rejected.
- 7) ☒ Claim(s) 12, 15, 21-23 and 35 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 August 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Abstract

1. In light of the allowable subject matter the examiner suggests the applicant amend the abstract to be more descriptive. For example the applicant might append an additional sentence to the abstract stating that the memory device may include data indicative of the history of the ink cartridge which may be utilized to control a reproduction of the ink cartridge.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bullock et al. US 5,699,091 in view of Tadokoro US 5,550,956.

Bullock et al. discloses, regarding claim 8, an ink cartridge (figure 4) for an ink jet type printing apparatus having a printhead (82), the ink cartridge comprising:

a container (60) having an ink chamber (62) for containing ink therein (column 6, lines 6-8);

an ink supply port (64) for supplying ink from the ink chamber to the print head (82) (column 6, lines 8-11, figure 5); and

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a read/write memory device (76) formatted to store data indicative of a past environment of use (temperature data) (column 7, lines 4-16).

Bullock et al. fails to disclose storing data indicative of the history of the ink cartridge.

Tadokoro teaches storing history information of a consumable such as an ink cartridge in a printer (see abstract, column 3, lines 38-48).

It would have been obvious for a person of ordinary skill in the art to store data indicative of ink cartridge history as taught by Tadokoro in the memory device of Bullock et al.

The motivation for doing so would have been to shorten the operation time of maintenance and inspection as taught by column 1, lines 20-28 of Tadokoro.

3. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bullock et al. US 5,699,091 in view of Koitabashi et al. US 6,000,778.

Bullock et al. discloses an ink cartridge (figure 4) for an ink jet type printing apparatus having a printhead (82), the ink cartridge comprising:

a container (60) having an ink chamber (62) for containing ink therein (column 6, lines 6-8);

an ink supply port (64) for supplying ink from the ink chamber to the print head (82) (column 6, lines 8-11, figure 5); and

a read/write memory device (76) formatted to store data related to a minimum ink amount to be contained in the cartridge and data indicative of a residual ink amount (column 7, lines 4-22).

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Bullock et al. fails to disclose altering an ink discharge operation during cleaning of the printhead according to the minimum and residual ink amounts.

Koitaishi et al. teaches altering an ink discharge operation during cleaning of a printhead in accordance with a minimum and residual ink amount contained in an ink container (see figure 18F, SE 31 and SE 32, column 1, line 62 - column 2, line 11).

It would have been obvious for a person of ordinary skill in the art at the time of the invention to alter an ink discharge operation during cleaning of the printhead in accordance with the minimum and residual ink amount contained in an ink container of Bullock et al. as taught by Sakuma.

The motivation for doing so would have been in order to properly determine recovery process conditions as taught by column 1, line 62 - column 2, line 11 of Sakuma.

4. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bullock et al. US 5,699,091 in view of Childers et al. US 6,126,265.

Bullock et al. discloses an ink jet printing apparatus (figure 5) comprising:
a print head (82) for ejecting ink droplets;
an ink cartridge (60) containing ink therein for supplying ink to the printhead;

a memory device (76) storing a variety of data including data representative of a preset minimum ink amount (prerecorded supply threshold)

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and residual ink (remaining ink estimate) of the ink cartridge (column 7, lines 4-23);

a control device (86) for controlling charging of ink into the printhead (by means of the ink pump) in accordance with data stored in the memory (column 7, lines 12-22, column 8, lines 10-20).

Bullock et al. fails to disclose that the control device determines whether cleaning is necessary based on the data in the memory.

Childers et al. discloses a control device (30) that determines whether a cleaning operation is necessary based on the data in an ink cartridge memory (28) (see abstract, column 5, lines 20-35).

It would have been obvious to a person of ordinary skill in the art to have the control device of Bullock et al. determine whether a cleaning operation is necessary based on data in an ink cartridge memory as taught by Childers et al.

The motivation for doing so would have been to alter servicing routines to be appropriate to new ink cartridge types as taught by column 3, lines 3-5 of Childers et al.

5. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bullock et al. US 5,699,091 in view of Childers et al. US 6,126,265, as applied to claim 24, and further in view of Kobayashi et al. EP 841 173.

Bullock et al., as modified, fails to disclose executing a cleaning operation when the residual ink amount is greater than the sum of the preset minimum ink

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amount and amount of ink necessary for a cleaning operation and executing a brief cleaning operation when the residual ink amount is greater than the preset minimum ink amount but less than the sum of the preset minimum ink amount and an ink amount consumed during cleaning.

Kobayashi et al. teaches executing a cleaning operation (figure 9, step S163) when the residual ink amount is greater than the sum of the preset minimum ink amount and amount of ink necessary for a cleaning operation and executing a brief cleaning operation (figure 9, step S160) when the residual ink amount is greater than the preset minimum ink amount but less than the sum of the preset minimum ink amount and an ink amount consumed during cleaning.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to execute the cleaning operations as taught by Kobayashi et al. in the apparatus of Bullock et al., as modified.

The motivation for doing so would have been to prevent the print consumables from being damaged by attempting to suck more ink than present in the ink cartridge as taught by page 3, lines 10-13 of Kobayashi et al.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

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A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1-11, 13, 14, 16-20 and 24 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 19 of U.S. Patent No. 6,361,138 in view of Bullock et al. US 5,699,091.

Claim 1 of the '138 patent recites limitations directed to an ink cartridge comprising a container and rewritable memory device which stores data indicative of the history and the cleaning/maintenance of the ink cartridge.

This claim is relevant to claims 1-11 and 13 of the present application.

Claim 19 of the '138 patent recites limitations directed to an ink jet printing apparatus comprising an ink cartridge including a container and rewritable memory device which stores data indicative of the history and the cleaning/maintenance of the ink cartridge, an inkjet printhead and a cleaning system.

This claim is relevant to claims 14, 16-20 and 24 of the present application.

The subject matter lacking from the claims of the '138 patent but included in the present claims include stored past environmental data (temperature data), minimum ink amount data and residual ink amount data in the memory device and an ink supply port for the ink cartridge.

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Bullock et al. demonstrates that an ink supply port (64) is common for an ink cartridge to supply ink to a printhead (figure 5) and storing the claimed data enables the several control functions such as calculating the remaining amount of ink and determining if the ink cartridge is proper (column 7, lines 4-32).

It would have been obvious to a person of ordinary skill in the art to include the data specified by Bullock et al. in the memory device claimed by the '138 patent and include an ink supply port in the ink cartridge claimed by the '138 patent.

The motivation for doing so would have been to supply ink to the print head for printing, to calculate the remaining amount of ink in the ink cartridge and to determine if the ink cartridge is proper as taught by column 7, lines 4-32 of Bullock et al.

Additional Prior Art

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Igval US 6,045,206 discloses assessing a history of printing operations associated with different users and selecting a maintenance procedure based on the historical log established.

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Allowable Subject Matter

8. Claims 1-7, 9-11, 14, 16-20 would be allowable upon acceptance of a terminal disclaimer which properly overcomes the applied double patenting rejection.

Claim 12, 15, 21-23 and 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 27-34 and 36-40 are allowable.

The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for the indication of the allowability of claim 1, 2, 6 and 9-12 is the inclusion therein, in combination as currently claimed, of the limitation of the memory device formatted to store data indicative of the history of the ink cartridge, data indicative of past environment of use of the ink cartridge, and data indicative of past cleaning of the print head, said memory device having an area in which the data is stored in a rewritable manner. This limitation is found in claims 1, 2, 6 and 9-12 and is neither disclosed nor taught by the prior art of record, alone or in combination.

The primary reason for the indication of the allowability of claim 3, 4, 5 and 7 is the inclusion therein, in combination as currently claimed, of the limitation of the memory device formatted to store data indicative of the history of the ink cartridge, wherein the data includes data indicative of past maintenance processing required for use in a reproduction of the ink cartridge, said memory

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device having an area in which the data is stored in a rewritable manner. This limitation is found in claims 3, 4, 5 and 7 and is neither disclosed nor taught by the prior art of record, alone or in combination.

The primary reason for the indication of the allowability of claims 14-23 and 35 is the inclusion therein, in combination as currently claimed, of the limitation of the memory device storing data related to the ink cartridge, data related to past environment of use of the ink cartridge and data relating to past cleaning of the print head. This limitation is found in claim 14-23 and 35 and is neither disclosed nor taught by the prior art of record, alone or in combination.

The primary reason for the indication of the allowability of claims 27-32 is the inclusion therein, in combination as currently claimed, of the limitation of a control device which controls a reproduction processing apparatus in accordance with said data, and causes at least data, representing the number of reproductions and the time of reproduction, to be stored in said memory device after the reproducing operation is finished. This limitation is found in claims 27-32 and is neither disclosed nor taught by the prior art of record, alone or in combination.

The primary reason for the indication of the allowability of claims 33 and 34 is the inclusion therein, in combination as currently claimed, of the limitation of a control device which judges from the data stored in said memory device whether a next reproduction of the ink cartridge is possible. This limitation is found in claims 33 and 34 and is neither disclosed nor taught by the prior art of record, alone or in combination.

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The primary reason for the indication of the allowability of claims 36-40 is the inclusion therein, in combination as currently claimed, of the limitation of the steps of evaluating the ink cartridge data using the reproducing control device and determining whether regeneration of the ink cartridge is possible. This limitation is found in claims 36-40 and is neither disclosed nor taught by the prior art of record, alone or in combination.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

9. Applicant's arguments filed December 19, 2002 have been considered but they are not fully persuasive.

The applicant has argued, regarding to 35 USC 103 rejection of claims 1-11 as being unpatentable over Bullock et al. '091 in view of Tadokoro '956 and Childers et al. '265 that

a) the applied references fail to teach a memory device formatted to store data indicative of past environment of use of the ink cartridge,

b) the applied references fail to teach a memory device formatted to store data indicative of the history of the ink cartridge and

c) the applied references fail to teach a memory device formatted to store data indicative of past cleaning of the printhead or maintenance processing.

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Applicant's first argument is less than fully persuasive because Bullock et al. clearly teaches storing data indicative of past environmental use of the ink cartridge. As explained in column 7, lines 4-11 and column 8, lines 40-50 the stored data of past environmental use is determined by past temperature data measurements that are used in determining the amount of ink usage.

Applicant's second argument is less than fully persuasive because it is a piecemeal analysis of the combination of Bullock et al. and Tadokoro. Tadokoro clearly discloses storing history information of an ink or toner print supply as seen with reference to figure 4 (information DY-DK). While Tadokoro fails to teach that the memory device that stores this information is placed on an ink cartridge Bullock et al. has clearly disclosed this aspect of the invention. Tadokoro clearly discloses the advantages of including such ink or toner history information in a memory device to shorten the operation time of maintenance and inspection in column 1, lines 20-28 as explained in the applied rejection.

Applicant's third argument is persuasive. While storing data indicative of cleaning of a printhead or maintenance processing of an ink cartridge in a memory device placed on an ink cartridge is known as evidenced by Childers et al. '265 in order to update servicing routines of a cleaning station a memory device formatted for the storage of data indicative of cleaning of the print head (or a maintenance processing for reproduction of an ink cartridge) **that has occurred in the past** is not evidenced by the art of record. This claimed limitation provides advantages to the art of being able to more properly determine

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if an ink cartridge is acceptable for refurbishment and is not obvious from the prior art.

Thus the rejection of claims 1-7 and 9-12 is withdrawn.

The applicant has argued the merits of the new limitation presented in claim 13 that the ink cartridge is operable to alter an ink discharge operation **during cleaning of the printhead** based on the stored data relating to the minimum ink amount and the residual ink amount.

The examiner has considered the merits of this new limitation and agrees that it overcomes the prior rejection. However this new limitation has necessitated additional searching that has produced a new rejection of claim 13.

The applicant has argued that the rejection of claims 14, 16-20 and 24 under 35 USC 103 as being unpatentable over Bullock et al. '091 in view of Childers et al. '265 is improper for lacking a showing of the memory device storing data related to past environmental use of the ink cartridge and data relating to past cleaning of the print head.

The examiner agrees that a memory device storing data relating to **past** cleaning of the print head is not shown by the applied references and withdraws the rejection of claims 14 and the claims dependent therefrom.

The applicant has argued that the rejection of claims 24 as being unpatentable over Bullock et al. '091 in view of Childers et al. '265 was improper because the applied references fail to render obvious a control device that judges whether a cleaning operation is necessary.

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The examiner disagrees. As disclosed by the abstract of Childers et al. '265 a processor selects a service station control procedure from a plurality of different procedures based on data from a memory device of an ink cartridge. As shown in the embodiments of column 7, lines 1-20 two possible servicing subroutines are disclosed. One excludes a wipe procedure (subroutine 1) and one includes a wipe procedure (subroutine 2). Therefore there is clearly a judgment made as to whether a cleaning operation is necessary based on information from data stored in the memory device. It is noted that the scope of claim 24 is not limited to the control device judging whether a cleaning operation is necessary in accordance with a preset minimum ink amount and residual ink in the ink cartridge. The applicant has merely claimed that the judgment is responsive to the data stored in the memory device which may include other data besides the preset minimum ink amount and residual ink amount. In the applied rejection the data disclosed in column 5, lines 20-35 of Childers et al. is the data stored in the memory device.

The applicant has addressed the obviousness-type double patenting rejection by acknowledging that a terminal disclaimer will be filed at a later date. The examiner notes that the claims at issue will not be allowed until the terminal disclaimer is filed.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.**

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See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Blaise Mouttet whose telephone number is (703) 305-3007. The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Barlow, Jr. Art Unit 2853, can be reached on (703) 308-3126. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3432.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Blaise Mouttet January 16, 2003

Bm 1/16/2003



HAI PHAM
PRIMARY EXAMINER